

DEPARTMENT of ENVIRONMENTAL SERVICES
Water Division - Watershed Management Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: MINE FALLS POND	Lake Area (ha):	97.93
Town: NASHUA	Maximum depth (m):	6.4
County: Hillsborough	Mean depth (m):	3.4
River Basin: Merrimack	Volume (m ³):	254500
Latitude: 42°45'02" N	Relative depth:	2.1
Longitude: 71°29'57" W	Shore configuration:	---
Elevation (ft): 149	Areal water load (m/yr):	---
Shore length (m): ---	Flushing rate (yr ⁻¹):	---
Watershed area (ha): ---	P retention coeff.:	---
% watershed ponded: ---	Lake type:	artificial

BIOLOGICAL:

10 February 1999

21 July 1998

DOM. PHYTOPLANKTON (% TOTAL)	#1	NO WINTER PLANKTON	ASTERIONELLA 95%
	#2	ANALYZED	
	#3		
PHYTOPLANKTON ABUNDANCE (units/mL)			
CHLOROPHYLL-A (µg/L)			14.39
DOM. ZOOPLANKTON (% TOTAL)	#1		KELICOTTIA 24%
	#2		NAUPLIUS LARVA 22%
	#3		POLYARTHRA 18%
ROTIFERS/LITER			632
MICROCRUSTACEA/LITER			790
ZOOPLANKTON ABUNDANCE (#/L)			1422
VASCULAR PLANT ABUNDANCE			Very abundant
SECCHI DISK TRANSPARENCY (m)			2.5
BOTTOM DISSOLVED OXYGEN (mg/L)		0.7	0.6
BACTERIA (E. coli, #/100 ml)	#1		12
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m):	1.9
Hypolimnion volume (m ³):	26600
Anoxic volume (m ³):	35900

CHEMICAL:

Lake: MINE FALLS POND
Town: NASHUA

	10 February 1999		21 July 1998		
DEPTH (m)	2.5	5.5	2.5		5.0
pH (units)	6.5	6.4	6.3		6.4
A.N.C. (Alkalinity)	37.9	48.1	43.2		116.6
NITRATE NITROGEN	0.93	0.45	0.38		< 0.05
TOTAL KJELDAHL NITROGEN	0.90	1.40	1.00		4.20
TOTAL PHOSPHORUS	0.033	0.050	0.046		0.098
CONDUCTIVITY (μ mhos/cm)	608.4	1689.1	526.0		1150.0
APPARENT COLOR (cpu)	13	47	21		150
MAGNESIUM			2.81		
CALCIUM			25.1		
SODIUM			89.5		
POTASSIUM			2.85		
CHLORIDE	160	488	136		350
SULFATE	17	22	9		4
TN : TP	55	37	30		43
CALCITE SATURATION INDEX			2.0		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1998

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
4	3	6	3	16	Eutro.

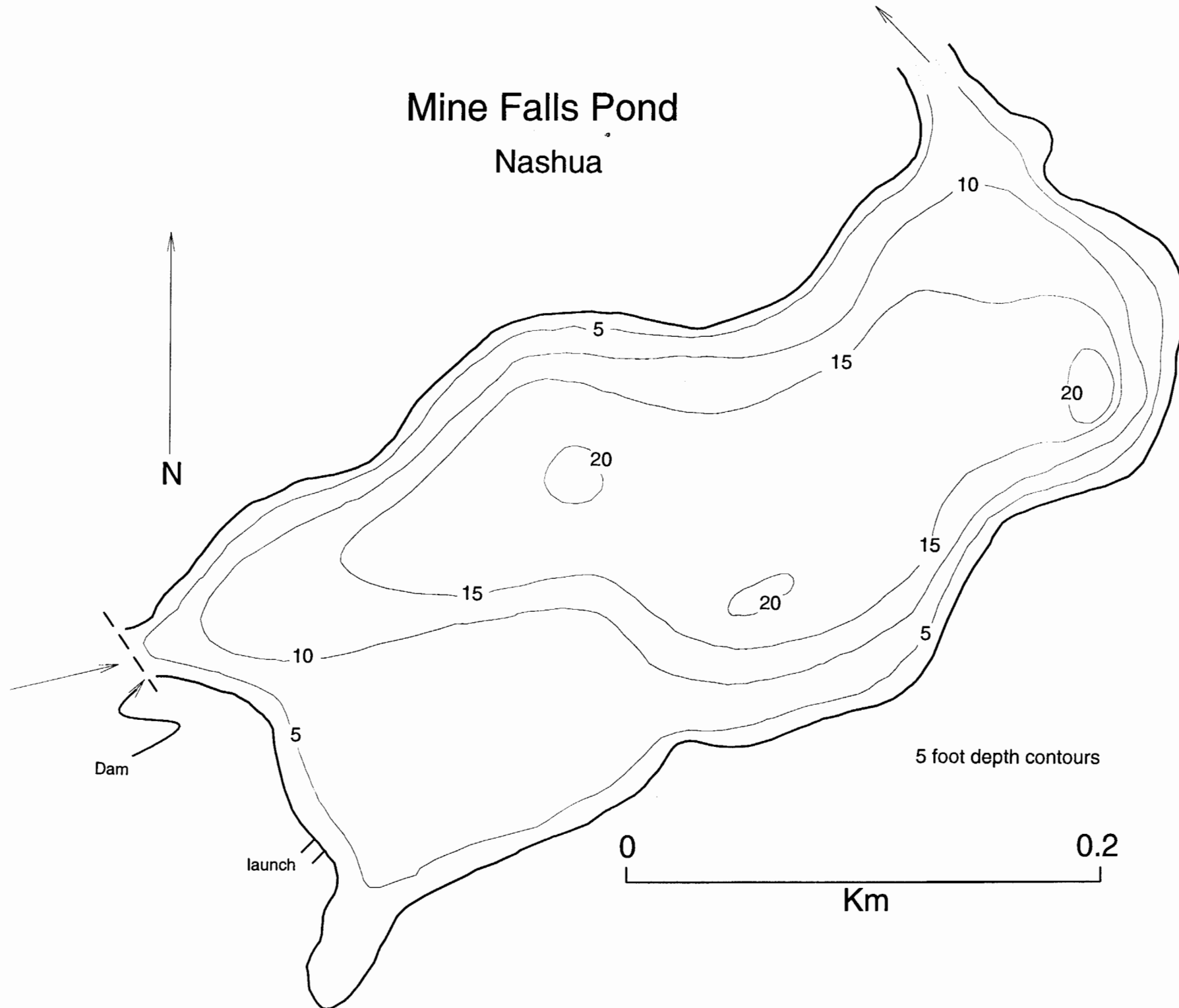
COMMENTS:

1. aka Mill Pond.
2. This pond is associated with the Nashua River and appears to be part of a canal system off the river. The area listed on the opposite page (97.93 ha or 242 ac) is the official area for Mine Falls Dam. However, it apparently is for a different area than the ponded area shown on the bathymetric and plant maps on the next two pages. The ponded area was determined to be 18.7 acres and this value was used when calculating the volume. Because it was unclear how much of the Nashua River, if any, flowed through the pond, watershed area and associated calculations (flushing rate, etc) were not determined.
3. This is an urban pond with very high ion levels (road salt plus other urban runoff) and high phosphorus concentrations. Parking lots and other impervious surfaces drain to the pond.
4. Dirt launch good for small boats and trailers; trails surround the pond.

Mine Falls Pond

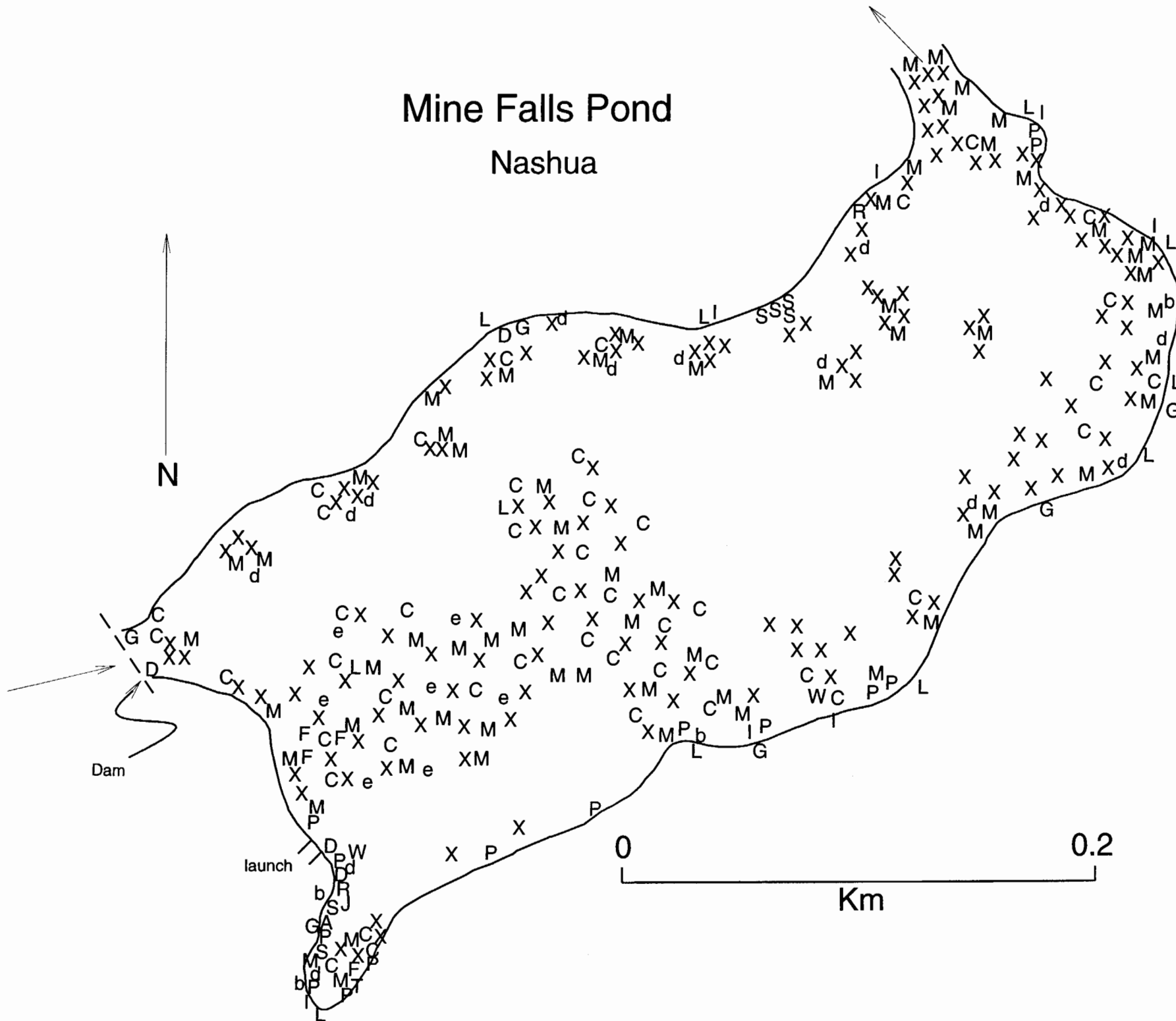
Nashua

III-100



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Nashua



III-102

AQUATIC PLANT SURVEY			
LAKE: MINE FALLS POND		TOWN: NASHUA	DATE: 07/21/1998
Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
P	<i>Pontederia cordata</i>	Pickerelweed	Sparse
S	<i>Sparganium</i>	Bur reed	Sparse
A	<i>Sagittaria</i>	Arrowhead	Sparse
L	<i>Lythrum salicaria</i>	Purple loosestrife	Sparse
C	<i>Ceratophyllum demersum</i>	Coontail	Very abundant
M	<i>Myriophyllum heterophyllum</i>	Water milfoil	Very abundant
b	<i>Scirpus validus</i>	Softstem bulrush	Sparse
d	<i>Lemna</i>	Duckweed	Scattered
T	<i>Typha</i>	Cattail	Sparse
X		Filamentous algae	Very abundant
I	<i>Iris</i>	<i>Iris</i>	Sparse
G	Gramineae	Grass family	Sparse
W	<i>Potamogeton nodosus</i>	Pondweed	Sparse
R	<i>Carex</i>	Sedge	Sparse
D	<i>Decodon verticillatus</i>	Swamp loosestrife	Sparse
J	<i>Juncus militaris</i>	Bayonet rush	Sparse
e	<i>Eloдея nuttallii</i>	Waterweed	Scattered
F	<i>Cabomba caroliniana</i>	Fanwort	Scattered
OVERALL ABUNDANCE: Very abundant			
<u>GENERAL OBSERVATIONS:</u>			
<ol style="list-style-type: none"> 1. It was not possible to use a motor due to interference from algal mats and dense growths of coontail and milfoil. 2. Algal mats consisting of several different species of filamentous algae covered approximately 40% of the surface of the pond. 3. Large concentrations of iron bacteria were in the southwestern cove where a culvert discharges to the pond. 			